# ARCHITECTURAL ACCESS BOARD- HEARING PACKET

**Name Compacted Crushed Stone Dust**

**Address**

**City**

**Bldg Type**

**Complaint's Name**

**Complaint ?**

**Jurisdiction:**

**Docket #** V -

**Docket #** C -

**Hearing**

**Time of hearing**

**Plans on file?**

**Variance ?**

**Request for continuance?**

**Building Permits:**

**Assessed Value:**

**Exhibit:** 1
Stone Dust
AAB 1-14

**Variances to be addressed:**

On May 26, 2026 the Board received a request for an advisory opinion regarding the use of compacted crushed stone dust. At the June 1, 2026 meeting the Board voted to schedule a hearing. On June 30th the Notice of Hearing was sent to all parties. (See AAB 2-14 )

Outlook

## Compacted Crushed Stone- Notice of Hearing

**From** AAB Variance (DPL) <AABVariance@mass.gov>
**Date** Tue 6/30/2026 2:45 PM
**Bcc** Lee, Rachael (DCR) <rachael.lee@mass.gov>; Michael Muehe <Mmuehe@bostoncil.org>; Machado, Victor (DPL) <Victor.Machado@mass.gov>

1 attachment (745 KB)
Compacted Crushed Stone Notice of Hearing.pdf;

Good afternoon,

Please find attached the Notice or Decisions for the above referenced case.

If you require a paper copy of a Notice or Decision, you may contact me to request one but be aware that the delivery of physical copies may be delayed.

Please feel free to share this information with those who may be interested in listening in on this hearing.

If you have any questions, please do not hesitate to get in touch with the Board's staff.

Thank you,
Molly

**Molly Griffin**
Program Coordinator
She/Her/Hers
Architectural Access Board
Office of Public Safety and Inspections
Division of Occupational Licensure
1 Federal Street, 6th Floor
Boston, MA 02110-2012
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## VARIANCE HEARING

**RE: Compacted Crushed Stone**

You are hereby notified that an informal adjudicatory hearing before the Architectural Access Board has been scheduled for you to appear on Monday, September 4, 2026 at 1:00 PM Remote meeting information will be sent out prior to the hearing date.

This hearing is upon an application for variance filed by: MAAB for modification of or substitution of the following Rules and Regulations: 22.5
A copy of the request is available for public inspection during regular business hours.

You should be aware that the burden of proof is upon the applicant requesting a variance to prove that compliance is either: 1. technologically infeasible or; 2. the cost of compliance is excessive without substantial benefit to a person with a disability.

This hearing will be conducted in accordance with the procedures set forth in M.G.L., c. 30A, and 801 CMR 1.02, the Informal/Fair Hearings Rules. At the hearing, each party may be represented by counsel, may present evidence and may cross examine opposing witnesses.

PLEASE NOTE: Requests for the continuance of a hearing must be received no later than fourteen (14) days prior to the scheduled hearing date. Continuances are granted at the Board's discretion only.

ARCHITECTURAL ACCESS BOARD

Dawn Guarnaccia WJ

Chairperson

Date: June 30, 2026

cc: Local Building Inspector
Independent Living Center
Local Disability Commission

AAB 3

Outlook

## Formal Advisory Opinion requested for Compacted Crushed Stone

**From** Lee, Rachael (DCR) <rachael.lee@mass.gov>

**Date** Tue 5/26/2026 8:26 AM

**To** Joyce, William (DPL) <William.Joyce@mass.gov>; Griffin, Molly (DPL) <Molly.Griffin@mass.gov>; Machado, Victor (DPL) <Victor.Machado@mass.gov>

1 attachment (7 MB)

Request-Formal Advisory Opinion on Compacted Crushed Stone.docx;

Hi Will, Victor, and Molly,

DCR is seeking the Board's formal advisory opinion about whether properly installed compacted crushed stone complies with 521 CMR 22.4 & 22.5. Please see the attached document for details. The document includes links to short videos demonstrating the surface in use, which are too large to send via email attachments. These links should work for anyone in the Commonwealth of Massachusetts, but they won't work for Board members who don't have a mass.gov account. I should be able to create links that will work for the Board members if you can share their email addresses with me, or you may be able to share the videos yourselves. I can also upload the videos to YouTube if that's a better way of sharing them: please let me know what you prefer.

- Video 1: Compacted crushed stone and manual wheelchair (10 seconds)
- Video 2: Compacted crushed stone and manual wheelchair casters (8 sec.)
- Video 3: Compacted crushed stone and power wheelchair (9 seconds)
- Video 4: Compacted crushed stone and power wheelchair casters (21 sec.)
- Video 5: Stabilized stone dust and manual wheelchair (12 seconds)
- Video 6: Stabilized stone dust and power wheelchair (10 seconds)

Thank you,
Rachael

**Rachael Lee**
*Site Accessibility Specialist*
**Massachusetts Department of Conservation and Recreation**
Universal Access Program
Mobile: (413) 992-8048

Our public lands and open spaces belong to all of us. Learn more at mass.gov/dcr

**AAB 4**

## Formal Advisory Opinion requested for Compacted Crushed Stone

DCR seeks the Board's formal advisory opinion about whether properly installed compacted crushed stone complies with 521 CMR 22.4 & 22.5.

### Compacted crushed stone description

Compacted crushed stone—commonly called 3/8 minus in the trail building community—has been the industry standard for accessible natural-surface trails and walkways for decades. This material and installation method was developed by Peter S. Jensen, a trail planner/builder with more than 45 years' experience, who in the 1990s served as a representative to the U. S. Access Board's Regulatory Negotiation Committee on Accessibility Guidelines for Outdoor Developed Areas and helped develop the Federal ABA accessibility guidelines for trails, camping facilities, picnic sites, and beaches.

Compacted crushed stone is derived from hard rock processed in a quarry and is composed of approximately half fines (aka stone dust) and half aggregate (aka crushed stone). When the correct gradation is followed and the material is compacted with sufficient moisture (see Compacted crushed stone outdoor walkway surfacing material specs on page 6), the fines and aggregate interlock together forming a stable, firm surface that complies with 521 CMR 22.4 & 22.5. This material performs similarly to stabilized stone dust.

The photographs on the following pages show compacted crushed stone trails across the state, as well as a stabilized stone dust trail at Mt. Tom State Reservation. The compacted crushed stone displays angular pieces that are consistent with crushed stone, and an important feature of how the material locks together when properly compacted. The stone dust exhibits rounder, smoother pieces, which is why a stabilizing material is required to hold the material together.



*Image 1: Close-up of compacted crushed stone at DCR's Mt. Tom State Reservation*



*Image 2: Close-up of stabilized stone dust at DCR's Mt. Tom State Reservation*



*Image 3: Park visitor using a mobility scooter on the 2-year old compacted crushed stone trail at Mt. Tom State Reservation. Note the lack of displacement of the surface material by the mobility device.*

Compacted crushed stone has been used to construct the majority of the accessible natural surface hiking trails in Massachusetts, including DCR's woodland accessible trails, Mass Audubon's All Persons Trails, MassTrails Grant funded accessible trails, and many more. These trails are consistently held up as examples of best practice for accessible trails and walkways because of the quality of the surface material. The recently-released Trails for All Report that was developed by the Trails for All initiative recommends to: "Establish 3/8" minus crushed stone material as the ***default*** material for accessible trail surfacing. Use alternate materials ***only*** where site conditions, aesthetic goals or performance requirements demand them." (Emphasis added.)



*Image 4: Mass Audubon's Brewster Woods All-Persons Trail, constructed with compacted crushed stone.*

## Videos

These videos demonstrate the firmness and stability of compacted crushed stone by showing how the surface holds up to use. The surface remains firm and stable and resists deformation by pedestrians, including those using mobility devices.

- Video 1: Compacted crushed stone and manual wheelchair (10 seconds)
- Video 2: Compacted crushed stone and manual wheelchair casters (8 sec.)
- Video 3: Compacted crushed stone and power wheelchair (9 seconds)
- Video 4: Compacted crushed stone and power wheelchair casters (21 sec.)

Two additional videos show a manual and power wheelchair on stabilized stone dust to show the equivalence to compacted crushed stone.

- Video 5: Stabilized stone dust and manual wheelchair (12 seconds)
- Video 6: Stabilized stone dust and power wheelchair (10 seconds)

All videos were taken at Mt. Tom State Reservation in May 2026 on trails that were installed in summer 2024.

## Improper installation can result in noncompliance

As with any material or design, improper implementation can result in a surface that does not comply with the requirements of 521 CMR 22. DCR visited Still Brook Park in Feeding Hills/Agawam in Fall 2025 and observed the noncompliant conditions there. While DCR does not have detailed knowledge of the installation at Still Brook Park, the material as observed was not compacted sufficiently. This kind of poor compaction can be the result of a variety of influences such as:

- improper material ratios (e.g. lack of fines to bind particles together)
- over raking
- improper wetting and compacting
- lack of angularity (aggregate is too rounded)

- inadequate amounts of natural soil cements in the parent material.

However, one failed installation does not mean that compacted crushed stone does not comply with 521 CMR, especially given the proven track record at hundreds of trails across New England. Compacted crushed stone, when installed properly, produces trails and walkways that are compliant with 521 CMR 22.4 and 22.5 while maintaining the natural feel of outdoor spaces.




*Image 5: Lake Wallace Accessible Trail in Belchertown, funded with a Mass Trails grant and constructed with compacted crushed stone.*



*Image 6: The accessible trail at DCR's DAR State Forest in Goshen, constructed with compacted crushed stone.*

## Compacted crushed stone outdoor walkway surfacing material

(Based on trail surfacing guidelines from Peter S. Jensen & Associates, LLC)

### Description

Compacted mineral material placed on the surface of an outdoor path which provides a firm and stable surface on which to walk.

### Materials

½ inch minus crushed rock derived from hard rock processed in a quarry.

Particle sizes range from ½ inch to dust. Processed bank gravel is NOT acceptable as it contains insufficient fines.

### Specifications

Surfacing - The surface material shall consist of the following gradation:

| **Sieve Size** | **% Passing** | **Acceptable Percentage Range** |
|---|---|---|
| 1/2" | 99.5 | 95–100 |
| 3/8" | 89.0 | 85–95 |
| 1/4" | 70.2 | 60–75 |
| #4 (0.187") | 61.7 | 35–65 |
| #8 (0.0937") | 44.8 | |
| #10 (0.0787") | 41.7 | |
| #16 (0.0469") | 33.6 | 20–40 |
| #30 (0.0234") | 26.5 | |
| #40 (0.0156") | 23.8 | |
| #50 (0.0117") | 21.6 | 15–30 |
| #60 (0.0098") | 20.6 | |
| #100 (0.0059") | 17.6 | |
| #200 (0.0029") | 13.3 | 10–15 |

The Acceptable Percentage Range provides potential suppliers with some flexibility in providing a viable product.

## INSTALLATION:

**Tread preparation:** Smooth mineral soil on tread, flatten/compact any loose stone in tread. Fill soft area or voids with crushed stone.

**Surfacing application**: Install surfacing evenly across the specified width of the pathway and compact in lifts of 3 to 4 inches for the base layer. Lifts of 2 to 3 inches can be used thereafter. A minimum of 6 inches compacted is recommended for pedestrian use. The surface must have an out slope of 2 percent max to assist in draining water.

**Surface compaction:** Applied surfacing must be compacted using an 8X8 hand tamper or vibratory plate compactor. The material must be compacted with sufficient moisture content to bind together. Material with too much moisture will not compact. Curing time is required (2 or more wet/dry cycles). Then apply firmness and stability test.

## Explanation of sieve analysis

Test sieve analysis is a process used to assess the particle size distribution of granular materials by passing them through a series of sieves with different mesh sizes. This method allows professionals to evaluate the proportions of various particle sizes within a sample, which is essential for applications in construction, environmental studies, and material sciences.

## Importance of sieve analysis

- **Material Characterization**: Helps in understanding the properties of materials used in construction and engineering.
- **Quality Control**: Ensures that materials meet the required specifications for various applications. The mesh number is crucial in sieve analysis as it defines the number of openings per square inch, ensuring accurate particle size measurement and quality control.
- **Soil Classification**: Assists in determining soil types for agricultural, geological, and construction purposes.

### Understanding sieve sizes

Diameter sieves refer to the dimensions of the openings in the sieve mesh that determine what particles will pass through or be retained. These sizes are typically classified using standard systems that specify the mesh size and the corresponding opening sizes.

### Sieve sizes in compacted crushed stone surfacing material

Sieve sizes are categorized by the mesh size and the diameter of the openings. Below are the sieve sizes referenced in the compacted crushed stone spec:

| Sieve Mesh Size (US) | Opening Size (mm) | Opening Size (inches) |
|---|---|---|
| 4 | 4.76 mm | 0.187 in |
| 8 | 2.38 mm | 0.0937 in |
| 10 | 2.00 mm | 0.0787 in |
| 16 | 1.19 mm | 0.0469 in |
| 30 | 0.595 mm | 0.0234 in |
| 40 | 0.425 mm | 0.0165 in |
| 50 | 0.297 mm | 0.0117 in |
| 60 | 0.250 mm | 0.0098 in |
| 100 | 0.149 mm | 0.0059 in |
| 200 | 0.075 mm | 0.0029 in |

Sources:

https://www.blacktimberindustrial.com/blog/post/sieve-sizes-explained-a-complete-guide-to-soil-separation-techniques

https://www.agmcontainer.com/wp-content/uploads/2020/06/Mesh_Equivalents.pdf